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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/736,694	12/17/2003	Daisuke Inomata	OKI.604	5802
20987	7590	07/29/2005	EXAMINER ANDUJAR, LEONARDO	
VOLENTINE FRANCOS, & WHITT PLLC ONE FREEDOM SQUARE 11951 FREEDOM DRIVE SUITE 1260 RESTON, VA 20190			ART UNIT 2826	PAPER NUMBER

DATE MAILED: 07/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/736,694	INOMATA, DAISUKE	
	Examiner	Art Unit	
	Leonardo Andújar	2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 23 December 2004.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>12/03</u>   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

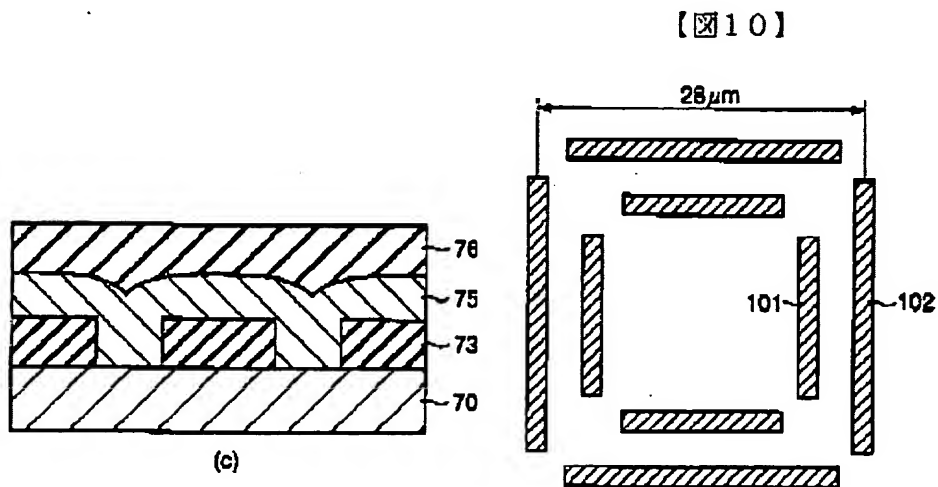
1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 4, 5, 9, 11 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Sato et al. (JP 2002064055 A).

3. Regarding claim 1, Sato (e.g. figs. 7c and 10) shows a semiconductor device comprising: a substrate 70 which has a main surface; and an alignment mark which is formed on the main surface and which has a pattern 101, wherein the pattern in a plane view has a shape that is obtained by eliminating corners from a polygon.



4. Regarding claim 2, Sato shows that the polygon is a rectangle.

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5. Regarding claim 4, Sato shows that the patterns of the alignment mark comprise a metal film 7.

6. Regarding claim 5, Sato shows a cover film 76 formed over the metal film to prevent the oxidation of the metal film.

7. Regarding claim 9, Sato (e.g. figs. 7c and 10) a semiconductor device comprising: a substrate 70 which has a main surface; and an alignment mark which is formed on the main surface and which has first through fourth sub patterns 101, wherein the first and second sub patterns (right and left) are arranged so as to oppose each other and the third and fourth sub patterns (top and bottom) are arranged so as to oppose each other and wherein the first through fourth sub patterns are separated from one another.

8. Regarding claim 11, Sato shows that the patterns of the alignment mark comprise a metal film 7.

9. Regarding claim 12, Sato shows a cover film 76 formed over the metal film to prevent the oxidation of the metal film.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 3, 6-8, 10 and 13-15 rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al. (JP 2002064055 A).

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12. Regarding claims 3 and 10, Sato shows most aspects of the instant invention including an alignment mark pattern having a thickness. However, Sato does not disclose that the thickness is in a range 0.6 to 0.8  $\mu\text{m}$ . The specific pattern thickness as claimed by applicant, i.e., 0.6 to 0.8  $\mu\text{m}$ , is only considered to be the "optimum" thickness of the alignment mark pattern disclosed by the Prior Art that a person having ordinary skill in the art would have been able to determine using routine experimentation based, among other things, on the desired accuracy, manufacturing costs, etc. (see *In re Boesch*, 205 USPQ 215 (CCPA 1980)). Furthermore, it is noted that the specification fails to provide teachings about the criticality of the claimed thickness. Thickness differences will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such thickness range is critical. "Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the workable ranges by routine experimentation". *In re Aller*, 220 F.2d 454,456,105 USPQ 233, 235 (CCPA 1955). Since the applicant has not established the criticality (see next paragraph) of the claimed alignment mark thickness range, it would have been obvious to one of ordinary skill in the art to use these values in the device disclosed by Sato.

#### CRITICALITY

The specification contains no disclosure of either the critical nature of the claimed plasma exposure time or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen dimensions or upon another variable recited

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in a claim, the applicant must show that the chosen dimensions are critical. In *re* Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

13. Regarding claims 6 and 13, Sato shows most aspects of the instant invention except for a cover film having a pattern that in a plane view has a shape that is obtained by eliminating corners from the polygon or a first through fourth patterns and wherein the first through fourth patterns are formed on the first through fourth sub pattern respectively. However, this limitation, absent any criticality, is only considered to be an obvious modification of the shape cover film disclosed by Prior Art as the courts have held that a change in shape or configuration, without any criticality, is within the level of skill in the art as the particular shape claimed by applicant is nothing more than one of numerous shapes that a person having ordinary skill in the art will find obvious to provide using routine experimentation based on its suitability for the intended use of the invention. It would have been an obvious matter of design choice to make cover film disclosed by Sato having a shape that in a plane view has a shape that is obtained by eliminating corners from the polygon or a first through fourth patterns and wherein the first through fourth patterns are formed on the first through fourth sub patterns respectively since such a modification would have involved a mere change in the shape of a component. A change in shape is generally recognized as being within the level of ordinary skill in the art. See *In re Dailey*, 149 USPQ 47 (CCPA 1976).

14. Regarding claims 7 and 14, Sato shows that the width of the patterns that cover the film is several micrometers wider in one side than the width of the pattern formed of

the metal film. Note the cover film thickness exceeds the thickness of the alignment mark pattern.

15. Regarding claims 8 and 15, Sato discloses the claimed invention except for a cover film made of iridium based metal. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the cover film made of iridium based metal, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

### ***Conclusion***

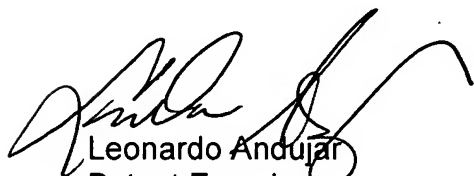
16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonardo Andújar whose telephone number is 571-272-1912. The examiner can normally be reached on Mon through Thu from 9:00 AM to 7:30 PM EST.

17. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J. Flynn can be reached on 571-272-1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

18. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Leonardo Andujar', is written over the printed name.

Leonardo Andujar  
Patent Examiner

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07/18/2005